

Long-range troubleshooting

Rugged video system connects experts and cuts downtime



The multi-function camera and communication device allows experts to diagnose problems and lead repairs remotely.

When a problem arises on site and expert support is in another hemisphere, it is not such a small world after all. Getting those expert boots on the ground to provide the solution at the work site takes time, especially in the modern global industry where the parts, resources and people for a mining operation are sourced from around the world. The Onsite Video Collaboration System was created to close that distance and cut expensive downtime, allowing technical specialists to be a little nearer to two places at once.

Created by Winnipeg high-tech company Librestream, the system is based on a rugged, wireless camera device that provides audiovisual links between experts, supervisors, consultants and field operators around the globe. That means an engineer sitting in a Toronto office could help a foreman on an oil rig in Mexico repair a piece of equipment, step by step, in real time. And if a worker on the same rig were sick or injured, instant diagnosis could be available from a medical specialist in a hospital in another distant city.

Electrical engineer Kerry Thacher co-founded Librestream in 2003, after working with a large manufacturer of rugged handheld computing equipment. While there, he had become frustrated by the communication difficulties with technical partners and suppliers in the U.S., Japan and Taiwan. “We thought there might be some better way to collaborate over distance during development cycles, and created the Onsite system to do that,” says Thacher.

The system found a ready international market when production began in 2007. Since then, Librestream has sold thousands of mobile devices and the accompanying software.

The main customers are mining, oil and gas and manufacturing companies in the U.S., Asia, Europe, Central and South America.

Designed for hard hat areas

“Most existing collaboration technology is aimed at people sitting at a desk or in the conference room,” Thacher explains. “That’s not what goes on in the mining industry. These are people out at difficult locations and they need special tools.”

The company aims to save customers time and money by bringing the problem to the expert, rather than the other way around. By way of illustration, Thacher cites the case of a power system that broke down in a large open pit copper mine in South America. The problem threatened to leave hundreds of workers standing idle, along with a plant worth billions of dollars. Instead, experts in the U.S. used the Onsite system, via a

satellite link, to diagnose the fault. Local technicians were coached to make vital repairs and were trained to reduce the possibility of a further recurrence.

“Normally it would have taken three to four days, plus acclimatization time for a technical team to reach the remote mountain site,” says Thacher. “With Onsite, you don’t have to worry about getting on an airplane and losing productivity. By cutting physical travel you also reduce your company’s carbon footprint and lower risk exposure to employees. Some of the places where people are mining or drilling for oil are among the most hostile locations on earth.”

Limiting the need to travel, along with its risks and costs, can have a big impact on the bottom line. According to the Librestream CEO, Onsite usually pays for itself in just two uses – or even less.

How it works

Technically, the Onsite device is about the same size and weight as a professional SLR camera. Three models have been designed for either indoor or outdoor use, as well potentially hazardous environments such as chemical processing plants. The mobile device is fitted with a 10X optical zoom and a macro function that provides a clear, close-up view of small components or circuitry.

An illuminator ring surrounding the lens allows use in low light, and external devices such as a microscope or borescope can be connected if additional visuals are needed. An expert sitting at the desk with a computer can remotely control all the camera and collaboration functions, and communicate

with field staff at any location with access to a wireless, satellite or cellular network.

All participants in the collaboration can perform two-way telestration, or onscreen drawing. For recordkeeping the system is equipped with bi-directional video recording and still-image capture. Additional participants from different locations can also be included if the session needs extra input.

"This is not your typical video camera," says Thacher. "We worked hard to make our product go way beyond that. In fact, the main hardware development challenge was compressing all the extra functions in one hand-held device to provide high processing capacity with low power consumption."

Picture the potential

Thacher applied his experience in the development of mobile healthcare devices to the design of Onsight, and the technology's medical applications remain important to him. Apart from the system's industrial uses, he is particularly proud of its potential to save lives.

"With Onsight, I'm pleased to know that healthcare, medical diagnosis and emergency advice are now more accessible to remote communities," says Thacher. "I remember the case of a triplet in rural Nebraska who was born with a heart mur-




mur. The closest pediatric cardiologist was 115 miles away and the local doctor could not be sure if the baby had a life threatening defect."

Specialist diagnosis was needed quickly to determine if the family could be kept together or whether the boy had to be rushed to a major hospital. An ultrasound machine was hooked up to

Onsight and live streamed to the distant cardiologist who quickly confirmed the condition was not serious. "That diagnosis saved the family a lot of unnecessary disruption, fear and concern at a time when the parents were very vulnerable," says Thacher.

In another potentially harmful situation, Onsight was used in the test flights of a newly designed aircraft. During one flight, the pilot had to make a forced landing and luckily escaped unhurt. Onsight was set up to communicate between the team at the test site and the manufacturers, who were far away. "The ability to diagnose the problem in the field enabled the aircraft engineers and designers to diagnose the issue more quickly and cheaply, using information based on real life conditions," Thacher explains.

"We've taken teleconferencing to a new level," he adds. "And in the words of our company slogan: 'This changes everything'." 

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